

axes in the respective three supporting directions, means for detecting the position of the rotary body in the direction of the control axis, protective bearings serving as the mechanical restraining means, and electromagnet control means having at least an integral operation unit for controlling the electromagnets based on the result of detection of the position by the position detecting means, wherein the electromagnet control means is to magnetically levitate the rotary body at a predetermined target levitated position by supplying to each electromagnet an energizing current comprising a combination of a predetermined steady-state current and a control current which varies depending on the position of the rotary body, and the electromagnet control means comprises a target levitated position setting means for setting as the target levitated position of the rotary body in the direction of the control axis the position of the rotary body corresponding to a median of an integral output which is the output of the integral operation unit when the rotary body is magnetically levitated in a vicinity of one of limit positions in the direction of the control axis determined by the mechanical restraining means and the integral output of the integral operation unit when the rotary body is magnetically levitated in a vicinity of the other limit position.